
Guidelines for
Performance
of the

ULTRASOUND
EXAMINATION
OF THE
FEMALE PELVIS

AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE



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FOREWORD

The American Institute of Ultrasound in Medicine is an educational, literary, and scientific society concerned with the advancement of the art and science of ultrasound in medicine and research. To promote these goals, AIUM is pleased to publish *Guidelines for Performance of the Ultrasound Examination of the Female Pelvis*. This important clinical guideline has been developed by the many dedicated individuals associated with the Education Committee and the Section on Obstetrical and Gynecological Ultrasound of AIUM and with input from the American College of Obstetricians and Gynecologists and the Commission on Ultrasound of the American College of Radiology. We are indebted to the many volunteers who contributed their time, knowledge, and energy over the past couple of years bringing this important document to completion.

With over 11,000 members representing the entire range of clinical and basic science interests in medical diagnostic ultrasound and over 260 volunteers actively participating, AIUM has promoted the safe and effective utilization of ultrasound in clinical medicine for over 40 years. This document, and others like it, will continue to contribute to this record.

—*Barbara S. Hertzberg, M.D.*
Chairperson, AIUM Education Committee
(1993–1995)

GUIDELINES FOR PERFORMANCE OF THE ULTRASOUND EXAMINATION OF THE FEMALE PELVIS

The following are proposed guidelines for ultrasound evaluation of the female pelvis. The document consists of two parts:

Part I: Equipment and Documentation Guidelines

Part II: Guidelines for the General Examination of the
Female Pelvis

These guidelines have been developed to provide assistance to practitioners performing ultrasound studies of the female pelvis. In some cases, additional and/or specialized examinations may be necessary. While it is not possible to detect every abnormality, adherence to the following will maximize the probability of detecting most of the abnormalities that occur.

Part I

GUIDELINES FOR EQUIPMENT AND DOCUMENTATION

EQUIPMENT

Ultrasound examination of the female pelvis should be conducted with a real-time scanner, preferably using sector or curved linear transducers. The transducer or scanner should be adjusted to operate at the highest clinically appropriate frequency, realizing that there is a trade-off between resolution and beam penetration. With modern equipment, studies performed from the anterior abdominal wall can usually use frequencies of 3.5 MHz or higher, although a lower frequency transducer may occasionally be necessary to provide adequate penetration in an obese patient. Scans performed from the vagina should use frequencies of 5 MHz or higher.

CARE OF THE EQUIPMENT

All probes should be cleaned after each patient examination. Vaginal probes should be covered by a protective sheath prior to insertion. Following each examination, the sheath should be disposed and the probe wiped clean and appropriately disinfected. The type of antimicrobial solution and the methodology for disinfection depends on manufacturer and infectious disease recommendations.

DOCUMENTATION

Adequate documentation is essential for high quality patient care. A permanent record of the ultrasound examination and its interpretation should be kept by the facility performing the study. Images of all appropriate areas, both normal and abnormal, should be recorded. Variations from normal size should be accompanied by measurements. Images are to be appropriately labeled with the examination date, facility name, patient identification, image orientation, and whenever possible, the organ or area imaged. A report of the ultrasound findings should be included in the patient's medical record. Retention of the permanent record of the ultrasound examination should be consistent both with clinical need and with the relevant legal and local health care facility requirements.

Part II

GUIDELINES FOR PERFORMANCE OF THE ULTRASOUND EXAMINATION OF THE FEMALE PELVIS

The following guidelines describe the examination to be performed for each organ and anatomic region in the female pelvis. All relevant structures should be identified by the abdominal and/or vaginal approach. If an abdominal examination is performed and fails to provide the necessary diagnostic information, a vaginal scan should be done when possible. Similarly, if a vaginal scan is performed and fails to image all areas needed for diagnosis, an abdominal scan should be performed. In some cases, both an abdominal and a vaginal scan may be needed.

GENERAL PELVIC PREPARATION

For a pelvic sonogram performed from the abdominal wall, the patient's urinary bladder should, in general, be distended adequately to displace small bowel and its contained gas from the field of view. Occasionally, overdistention of the bladder may compromise evaluation. When this occurs, imaging should be repeated after the patient partially empties the bladder.

For a vaginal sonogram, the urinary bladder is preferably empty. The vaginal transducer may be introduced by the patient, the sonographer, or the physician. A female member of the physician's or hospital's staff should be present, when possible, as a chaperone in the examining room during vaginal sonography.

UTERUS

The vagina and uterus provide anatomic landmarks that can be used as reference points when evaluating the pelvic structures. In evaluating the uterus, the following should be documented:

(a) uterine size, shape, and orientation; (b) the endometrium; (c) the myometrium; and (d) the cervix.

Uterine length is evaluated on a long axis view as the distance from the fundus to the cervix. The depth of the uterus (anteroposterior dimension) is measured on the same long axis view from its anterior to posterior walls, perpendicular to its long axis. The width is measured on the axial or coronal view.

Abnormalities of the uterus should be documented. The endometrium should be analyzed for thickness, focal abnormality, and the presence of fluid or mass in the endometrial cavity. Assessment of the endometrium should allow for normal variations in the appearance of the endometrium expected with phases of the menstrual cycle and with hormonal supplementation. The myometrium and cervix should be evaluated for contour changes, echogenicity, and masses.

The endometrial thickness measurement should include both layers, measured anterior to posterior, in the sagittal plane. Any fluid within the endometrial cavity should be excluded from this measurement.

ADNEXA (OVARIES AND FALLOPIAN TUBES)

When evaluating the adnexa, an attempt should be made to identify the ovaries first since they can serve as a major point of reference for assessing the presence of adnexal pathology. Although their location is variable, the ovaries are most often situated anterior to the internal iliac (hypogastric) vessels, lateral to the uterus, and superficial to the obturator internus muscle. The ovaries should be measured and ovarian abnormalities should be

documented. Ovarian size can be determined by measuring the ovary in three dimensions (width, length, and depth), on views obtained in two orthogonal planes. It is recognized that the ovaries may not be identifiable in some women. This occurs most frequently after menopause or in patients with a large leiomyomatous uterus.

The normal fallopian tubes are not visualized in most patients. The para-adnexal regions should be surveyed for abnormalities, particularly fluid-filled or distended tubular structures that may represent dilated fallopian tubes.

If an adnexal mass is noted, its relationship to the uterus and ipsilateral ovary should be documented. Its size and echopattern (cystic, solid, or mixed; presence of septations) should be determined. Doppler ultrasound may be useful in select cases to identify the vascular nature of pelvic structures.

CUL-DE-SAC

The cul-de-sac and bowel posterior to the uterus may not be clearly visualized. This area should be evaluated for the presence of free fluid or mass. When free fluid is detected, its echogenicity should be assessed. If a mass is detected, its size, position, shape, echopattern (cystic, solid, or complex), and its relationship to the ovaries and uterus should be documented. Identification of peristalsis can be helpful in distinguishing a loop of bowel from a pelvic mass. In the absence of peristalsis, differentiation of normal or abnormal loops of bowel from a mass may, at times, be difficult. A transvaginal examination may be helpful in distinguishing a suspected mass from fluid and feces within the normal rectosigmoid. An ultrasound water enema study or a repeat examination after a cleansing enema may also help distinguish a suspected mass from bowel.

The following Guidelines also are available from the American Institute of Ultrasound in Medicine:

Guidelines for the Performance of the

Abdominal and Retroperitoneal Ultrasound Examination

—Also available in Spanish

Antepartum Obstetrical Ultrasound Examination

Infant Brain Examination

Scrotal Ultrasound Examination

Ultrasound Examination of the Breast

—Also available in Spanish

Ultrasound Examination of the Prostate (and Surrounding Structures)

Thyroid and Parathyroid Ultrasound Examination

Vascular/Doppler Ultrasound Examination

These Guidelines can be ordered by contacting the AIUM Publications Department, 14750 Sweitzer Lane, Suite 100, Laurel, MD 20707–5906. Phone: (301) 498–4100. Fax: (301) 498–4450.



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